What is claimed is:

1. A method of controlling a storage device controlling apparatus which includes:

a plurality of channel controllers having a circuit
5   board on which are formed a file access processing section receiving requests to input and output data in files as units from an information processing apparatus via a network and an I/O processor outputting to a storage device I/O requests corresponding to said requests to input and output data; and

10   a disk controller executing input and output of data into and from said storage device in response to the I/O requests sent from said I/O processors, and

which manages a memory area provided by said storage device in logical volumes, which are memory areas logically
15 set on the memory area, said method comprising the steps of:

receiving, by at least one of said channel controllers, data specifying an assignment of a logical volume to said channel controller, said data being sent from said information processing apparatus; and

20   storing said received assignment by said at least one channel controller.

2. A method of controlling a storage device controlling apparatus according to claim 1, wherein when receiving one of
25 said data input and output requests, each of said at least one channel controller checks based on said stored assignment whether or not the data input/output request is targeted at a logical volume assigned to said channel controller, and if not

targeted thereat, the data input/output request is not executed.

3. A method of controlling a storage device controlling apparatus which includes:

a plurality of channel controllers having a circuit board on which are formed a file access processing section receiving requests to input and output data in files as units from an information processing apparatus via a network and an I/O processor outputting to a storage device I/O requests corresponding to said requests to input and output data; and

a disk controller executing input and output of data into and from said storage device in response to the I/O requests sent from said I/O processors, and

which manages a memory area provided by said storage device in logical volumes, which are memory areas logically set on the memory area, said method comprising the steps of:

performing, when data is written into a first logical volume, by said disk controller a replication management process by which said data is also written into a second logical volume in order to store a copy of the data in a second logical volume;

receiving, by each of at least one of said channel controllers, correspondence between a first logical volume and a second logical volume where a copy of the first logical volume is stored, which correspondence is sent from said information processing apparatus, and notifying it to said disk controller; and

performing by said disk controller said replication management process according to said notified correspondence.

4. A method of controlling a storage device controlling apparatus which includes:

a plurality of channel controllers having a circuit board on which are formed a file access processing section receiving requests to input and output data in files as units from an information processing apparatus via a network and an I/O processor outputting to a storage device I/O requests corresponding to said requests to input and output data; and

a disk controller executing input and output of data into and from said storage device in response to the I/O requests sent from said I/O processors, and

which manages a memory area provided by said storage device in logical volumes, which are memory areas logically set on the memory area, said method comprising the steps of:

performing, when data is written into a first logical volume, by said disk controller a remote replication management process by which said data is sent to a second logical volume provided by another storage device controlling apparatus in order to store a copy of the data in a second logical volume in said another storage device controlling apparatus;

receiving, by each of at least one of said channel controllers, correspondence between a first logical volume and a second logical volume where a copy of the first logical volume is stored, which correspondence is sent from said

information processing apparatus, and notifying it to said disk controller; and

performing, by said disk controller, said remote replication management process according to said notified

5 correspondence.

5. A method of controlling a storage device controlling apparatus which includes:

a plurality of channel controllers having a circuit

10 board on which are formed a file access processing section receiving requests to input and output data in files as units from an information processing apparatus via a network and an I/O processor outputting to a storage device I/O requests corresponding to said requests to input and output data; and

15 a disk controller executing input and output of data into and from said storage device in response to the I/O requests sent from said I/O processors; said method comprising the steps of:

receiving, by each of at least one of said channel

20 controllers, setting information about backup of data stored in said storage device from said information processing apparatus; and

reading to-be-backed-up data stored in said storage device based on said setting information and sending the data

25 to a backup device coupled to said network.

6. A method of controlling a storage device controlling apparatus according to claim 5, wherein in setting information,

to-be-backed-up data is specified in files or directories as units.

7. A method of controlling a storage device controlling apparatus which includes:

a plurality of channel controllers having a circuit board on which are formed a file access processing section receiving requests to input and output data in files as units from an information processing apparatus via a network and an I/O processor outputting to a storage device I/O requests corresponding to said requests to input and output data; and

a disk controller executing input and output of data into and from said storage device in response to the I/O requests sent from said I/O processor,

said method being for updating a program read from said storage device and executed by hardware formed on said circuit board, said method comprising the steps of:

receiving, by each of at least one of said channel controllers, data for updating said program and sent from said information processing apparatus; and

updating, by said controlling apparatus, said program stored in said storage device according to the data for updating the program.

8. A method of controlling a storage device controlling apparatus according to claim 7, wherein at least one of said channel controllers has a function as a Web server, and wherein data for updating one of said program and the contents

of said non-volatile memory is sent to said at least one channel controller by use of a Web page function provided to said information processing apparatus via said network.

5   9. A method of controlling a storage device controlling apparatus according to claim 7, wherein said program is at least one of a program for enabling an operating system executed by hardware formed on said circuit board to function and an application program operating on the operating system.

10

10. A method of controlling a storage device controlling apparatus which includes:

a plurality of channel controllers implemented by, as components, a circuit board on which are formed a file access

15 processing section receiving requests to input and output data in files as units from an information processing apparatus via a network and an I/O processor outputting to a storage device I/O requests corresponding to said requests to input and output data; and

20   a disk controller executing input and output of data into and from said storage device in response to the I/O requests sent from said I/O processors; said method comprising the steps of:

receiving, by each of at least one of said channel

25 controllers, information specifying a second channel controller as the to-fail-over for fail-over automatically performed in association with a first channel controller's processing, said information being sent from said information

processing apparatus; and

automatically performing, by said storage device controlling apparatus, fail-over from the first channel controller to the second channel controller based on said

5   specifying information.

11. A storage device controlling apparatus which includes:

a plurality of channel controllers having a circuit

10 board on which are formed a file access processing section receiving from an information processing apparatus requests to input and output data in files as units via a network and an I/O processor outputting to a storage device I/O requests corresponding to said requests to input and output data; and

15 a disk controller executing input and output of data into and from said storage device in response to the I/O requests sent from said I/O processors, and

which manages a memory area provided by said storage device in logical volumes, which are memory areas logically

20 set on the memory area, said controlling apparatus wherein at least one of said channel controllers comprises a section receiving data specifying an assignment of a logical volume to said channel controller, said data being sent from said information processing apparatus; and a section storing said

25 received assignment.

12. A storage device controlling apparatus according to claim 11, wherein each of said at least one channel controller

comprises a section which, when receiving one of said data input and output requests, checks based on said stored assignment whether or not the data input/output request is targeted at a logical volume assigned to said channel

5 controller, and which controls such that, if not targeted thereat, the data input/output request is not executed.

13. A storage device controlling apparatus which includes:

10 a plurality of channel controllers having a circuit board on which are formed a file access processing section receiving from an information processing apparatus requests to input and output data in files as units via a network and an I/O processor outputting to a storage device I/O requests

15 corresponding to said requests to input and output data; and

a disk controller executing input and output of data into and from said storage device in response to the I/O requests sent from said I/O processors, and

which manages a memory area provided by said storage

20 device in logical volumes, which are memory areas logically set on the memory area,

said controlling apparatus wherein said disk controller comprises a section which, when data is written into a first logical volume, performs a replication management process by

25 which said data is also written into a second logical volume in order to store a copy of the data in a second logical volume,

wherein at least one of said channel controllers

comprises a section which receives correspondence between a first logical volume and a second logical volume where a copy of the first logical volume is stored, which correspondence is sent from said information processing
5 apparatus, and which notifies it to said disk controller, and

wherein said disk controller further comprises a section which performs said replication management process according to said notified correspondence.

10   14.   A storage device controlling apparatus which includes:

a plurality of channel controllers having a circuit board on which are formed a file access processing section receiving from an information processing apparatus requests to
15 input and output data in files as units via a network and an I/O processor outputting to a storage device I/O requests corresponding to said requests to input and output data; and

a disk controller executing input and output of data into and from said storage device in response to the I/O
20 requests sent from said I/O processors, and

which manages a memory area provided by said storage device in logical volumes, which are memory areas logically set on the memory area,

said controlling apparatus wherein said disk controller
25 comprises a section which, when data is written into a first logical volume, performs a remote replication management process by which said data is sent to a second logical volume provided by another storage device controlling apparatus in

order to store a copy of the data in a second logical
volume in said another storage device controlling apparatus,

wherein each of at least one of said channel controllers
further comprises a section which receives correspondence
5   between a first logical volume and a second logical volume
where a copy of the first logical volume is stored, which
correspondence is sent from said information processing
apparatus, and notifies it to said disk controller, and

wherein said disk controller further comprises a section
10 which performs said remote replication management process
according to said notified correspondence.

15. A method of controlling a storage device controlling
apparatus which includes:
15   a plurality of channel controllers having a circuit
board on which are formed a file access processing section
receiving from an information processing apparatus requests to
input and output data in files as units via a network and an
I/O processor outputting to a storage device I/O requests
20 corresponding to said requests to input and output data; and

a disk controller executing input and output of data
into and from said storage device in response to the I/O
requests sent from said I/O processors,

said controlling apparatus wherein each of at least one
25 of said channel controllers further comprises a section which
receives setting information about backup of data stored in
said storage device from said information processing
apparatus; and a section which reads to-be-backed-up data

stored in said storage device based on said setting
information and sends the data to a backup device coupled to
said network.

5   16. A storage device controlling apparatus according to
claim 15, wherein in setting information, to-be-backed-up data
is specified in files or directories as units.

        17. A storage device controlling apparatus which
10 includes:
        a plurality of channel controllers having a circuit
board on which are formed a file access processing section
receiving from an information processing apparatus requests to
input and output data in files as units via a network and an
15 I/O processor outputting to a storage device I/O requests
corresponding to said requests to input and output data; and
        a disk controller executing input and output of data
into and from said storage device in response to the I/O
requests sent from said I/O processors,
20   said controlling apparatus being for updating a program
read from said storage device and executed by hardware formed
on said circuit board,
        said controlling apparatus wherein each of at least one
of said channel controllers further comprises a section which
25 receives data for updating said program and
sent from said information processing apparatus, and
        said controlling apparatus further comprising a section
which updates said program stored in said storage device

according to the data for updating the program.

18. A storage device controlling apparatus according to claims 17, wherein at least one of said channel controllers

5 has a function as a Web server, and wherein data for updating one of said program and the contents of said non-volatile memory is sent to said at least one channel controller by use of a Web page function provided to said information processing apparatus via said network.

10

19. A storage device controlling apparatus according to claim 17, wherein said program is at least one of a program for enabling an operating system executed by hardware formed on said circuit board to function and an application program

15 operating on the operating system.

20. A storage device controlling apparatus which includes:

a plurality of channel controllers implemented by, as

20 components, a circuit board on which are formed a file access processing section receiving from an information processing apparatus requests to input and output data in files as units via a network and an I/O processor outputting to a storage device I/O requests corresponding to said requests to input

25 and output data; and

a disk controller executing input and output of data into and from said storage device in response to the I/O requests sent from said I/O processors,

said   controlling apparatus wherein each of at least one of said channel controllers further comprises a section which receives information specifying a second channel controller as the to-fail-over for fail-over automatically

5 performed in association with a first channel controller's processing, said information being sent from said information processing apparatus, and said controlling apparatus further comprising a section which automatically performs fail-over from the first channel controller to the second channel

10 controller based on said specifying information.